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Central Intelligence Agency

Washington, D.C. 20505

2 December 1986

MEMORANDUM FOR: See Attached Distribution

FROM:
Chief, Geographic Issues Division
Office of Global Issues

SUBJECT: The Iran-Iraq War: Impact of the Wet Season

1. The attached report examines the impact of the winter wet season on the projected Iranian offensive against Al Basrah in southern Iraq. Although both armies will be affected, the winter weather will tend to work to the advantage of the Iranians and hinder operations of the more mechanized Iraqis.

2. This memorandum was prepared by Office of Global Issues, and Office of Near Eastern and South Asian Analysis. Comments and queries are welcome and may be directed to the Chief, Geographic Issues Division, OGI or to the Chief, Persian Gulf Division, NESA

Attachment:
The Iran-Iraq War: Impact of the Wet Season
GI M 86-20277, November 1986,

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25X1 SUBJECT: The Iran-Iraq War: Impact of the West Season [redacted] 25X1

OGI/GD/NEA [redacted] (2Dec86)

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Central Intelligence Agency

Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

28 November 1986

The Iran-Iraq War: Impact of the Wet Season

Summary

Although Iran's current plans for a major offensive against Iraq in the southern border region hinge primarily on political and logistic considerations, the weather is an important factor. The difficulties caused by the wet season are sometimes exaggerated, but both sides recognize the substantial problems caused by the areas's climate and geography and are working continuously to overcome them. On balance, however, the onset of the five-month-long wet season in November will tend to work to the Iranians' advantage and hinder Iraqi operations.

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GI M 86-20277

The Iran-Iraq War: Impact of the Wet Season

The rhetoric of the clerical regime in Tehran and the extent of Iranian military preparations along the southern front in late summer suggested that Iran intended to launch a major offensive against Iraq in early autumn. Thus far, disagreement over war policy and logistics problems have forced a delay in the anticipated attacks. Some observers among the international community and press have speculated that Iran has chosen to delay its military push until after the onset of the winter wet season. Even more likely in our view, Iranian commanders have had to postpone their assault because of the logistic problems normally associated with any large-scale offensive. The winter weather will be an important factor in Iranian operational planning, however, and it could give Tehran's forces an edge over the Iraqi defenders.

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The Winter Climate and Iran's Advantages

The little precipitation that the southern Iran-Iraq border area receives generally falls between November and late April. Nearly all of it occurs as rain showers during the passage of low pressure systems and fronts. The weather is sometimes erratic, and storms can come and go quickly, dropping more than an inch of rain in 24 hours. The mean annual amount for most of the south, however, is only between 6.2 and 7.5 inches--about one-half the total for Los Angeles, for example. (Additional statistics on precipitation and cloud cover in the region are available in Figure 1.)

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However limited the rainfall, the associated weather patterns are likely to help Iranian forces in several ways. Most significantly, the cloud cover associated with the wet season will hamper the Iraqi Air Force's flight operations and provide concealment for priority air targets like Iranian troops in assembly areas. Near complete cloud cover occurs on only three to seven days per month, however, and the Iranians will not be able to count on Iraqi aircraft being kept out of action for long periods. The weather also will help conceal Iranian troop movements on the ground. An Iranian attack launched, for example, during a heavy rain shower, possibly in conjunction with a new moon, would have an increased likelihood of achieving surprise over the Iraqi defenders.

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Rainy weather will also diminish the efficiency of the chemical weapons Iraq uses to respond to Iranian offensives. Rainfall decreases the dispersion of the chemicals, and wet and windy conditions reduce persistency of some chemical agents from days to hours. Nearly a quarter of Iran's casualties during the Al Faw offensive this year were caused by chemical weapons, so any reduction in the effectiveness Iraq's chemical agents helps.

Typically, winter rainfall has its biggest impact on military operations by hampering the ability of advancing armies to move their forces. The rains aggravate existing problems with cross-country movement by expanding marshes and miring fields, and, with the spring flooding, inundating normally dry terrain. In general, the lightly-armed Iranian infantry can slog its way through the mud and water on the battlefield more easily than Iraq's mechanized forces. This is not the advantage its seems, however, because most of the areas Tehran would consider attacking are unsuited for vehicular cross-country movement year round. Iraqi forces occupy static defensive positions and at least initially have no need to move. In addition, raised routes for Iraqi reinforcements--or withdrawals--have been prepared in most areas.

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Weather and Tactics

If and when the long awaited Iranian offensive unfolds, the wet season and the associated climatic and geographic conditions will play a key role in the choice ot tactics by each of the combatants. Iraq's efforts to improve its defensive positions, for example, and Iran's construction of roads, causeways and river crossings reflect both sides' recognition of the need to control the impact of the winter rains. More specifically, the effects of the winter weather will create a different set of problems in each of the three most likely approaches for Iranian attacks and their staging areas: the Al Faw and Abadan Peninsulas, the Al Basrah-Khorramshahr area, and the Hawizah Marsh.

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The Al Faw and Abadan Peninsulas

One approach to Al Basrah would be for the Iranians to move their forces up the Al Faw peninsula (Figure 2). The peninsula on the Iraqi side of the border, formed by the Shatt al Arab, is low-lying and poorly drained. Depressions become shallow lakes during the winter and spring months when large areas are miry and vehicular movement is restricted to embanked roadways (Figure 3). Date palm groves along the Shatt and drainage canals perpendicular to the waterway also restrict vehicular movement. A large drainage canal and the Kawr az Zubayr between Al Basrah and Umm Qasr delimits the western side of the peninsula. Water

overtopping the canal banks fills adjoining low areas and creates narrow, wet, impassable zones west of the canal and adds to the miry conditions on the peninsula. Year-round off-road movement is available only southwest of the large canal where the land is higher and well drained. The Abadan Peninsula on the Iranian side of the Shatt presents geographical problems similar to those on the Al Faw peninsula.

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Conditions for cross-country movement in both peninsulas improve as depressions dry out in late summer and fall. Large areas remain miry, however, and in the past year Iran and Iraq have built extensive networks of roads and causeways to assist movement away from higher ground (Figure 4). On its side of the Shatt al-Arab, Iran makes use of the rivers and canals dissecting the Abadan Peninsula by relying heavily on barges for transporting supplies. In addition, Tehran now has a completed causeway, is constructing a deck bridge, and has installed at least one pontoon bridge that can be swung into position across the Shatt near Al Faw.

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Iranian attacks from Al Faw, whether toward Umm Qasr or Al Basrah, would likely begin on a broad front, but Iran's forces would be exposed to Iraqi artillery and, on clear days, to aircraft as they worked their way on foot or in boats across the mires. If they succeeded in moving toward Al Basrah, Iranian units would be constricted along Iraqi roads or high ground near the Shatt after they consolidated their forces on captured Iraqi positions. As supply lines lengthened, the Iranians would require road-bound supply convoys which would be particularly vulnerable to Iraqi attacks. If Iran should get across the unbridged waterway at Umm Qasr it could be threatened by Iraqi armor that would be able to manuever on the higher ground there.

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In such an offensive, the Iranian bridges across the Shatt would be critical chokepoints that cloud cover would help protect from Iraqi airpower. Iran would be likely to restrict their use to night or when concealed by the weather. The rains, however, could make these crossings tricky. As the flow of the Shatt increases, particularly in late spring, it could become increasingly difficult to maintain a pontoon bridge even though pilings to brace the bridge have been driven into the bottom of the Shatt. Winter tides and the rising river could also wash away the roadbed from Iran's causeway, reducing the flow of Iranian supplies into the Al Faw salient.

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Al Basrah-Khorramshahr

A second possible approach to Al Basrah for the Iranians would be to cross the border in force at Khorramshahr and then move west to their objective. Northeast of Al Basrah, Iraq has

intentionally flooded the border areas and maintains them in winter and summer by large-scale pumping from the Shatt al-Arab through Fish Lake. This flooding is only marginally affected by the winter rains, but if necessary, the Iraqis could augment the water supply by additional pumping from the Shatt just southeast of the junction of the Tigris and Euphrates Rivers. Thus far, Iranian efforts to drain the flooded areas--particularly a large antitank ditch parallelling the 90-degree bend in the border--have been only partially successful. The winter rains are likely to reduce the areas suitable for vehicular traffic further.

The Iraqis have constructed strong defensive positions along the part of the border which runs in a straight line east of Al Basrah, and these augment the protection provided by the flooded areas. Iran suffered its worst defeat trying to approach Al Basrah directly from here in 1982. As an alternative, Iran might elect to advance from Khorramshahr toward Al Basrah in a move similar to an unsuccessful attack that was part of the Al Faw offensive. Again, the rain-expanded mires would constrict the Iranians, and make a breakout from the palm groves along the Shatt very difficult. Iran has built bridges and causesways across the Karun and Bahmanshir Rivers near Khorramshahr to improve its ability to move troops and supplies to this area.

The Hawizah Marsh

The third main approach to isolate and capture Al Basrah would entail an Iranian move in force westward across the Hawizah marsh. Causeway building by Iran and Iraq is drying parts of the marsh and the neighboring Hammar Marsh by partially blocking the inflow of water. Iran now occupies most of Hawizah and it continues to extend causeways toward the Iraqi shore. Iranian causeways to the Majnoon Islands have caused drying and reduced the size of the wet area between the islands and the mainland. Previously used boat pathways cut in the marsh vegetation have dried to a point where vehicular traffic is possible in places. These dry spots could be very useful for staging areas, storage points, and possibly off-causeway air defense sites if Iran attacks through the marshes.

The dried marshland on the northwestern shore of Hawizah and in the Hammar marsh have widened the area on which the Iraqis can rest their defenses and rear area support operations. Since 1985 Baghdad has been building lines of berms and raised roadways to defend and widen the isthmus of land between the two marshes. Now defensive positions have been extended into the former marsh west of the Tigris River.

Iran would probably welcome winter rains because the resulting higher water levels in the marsh would allow them to make an initial assault--which would have to be done by boat--closer to Iraqi lines. Cloud cover also would conceal their exposed forces from Iraq's air force. For Iraq, the rains would be likely to make some of the currently dry areas on its side of the marsh unsuitable for movement.

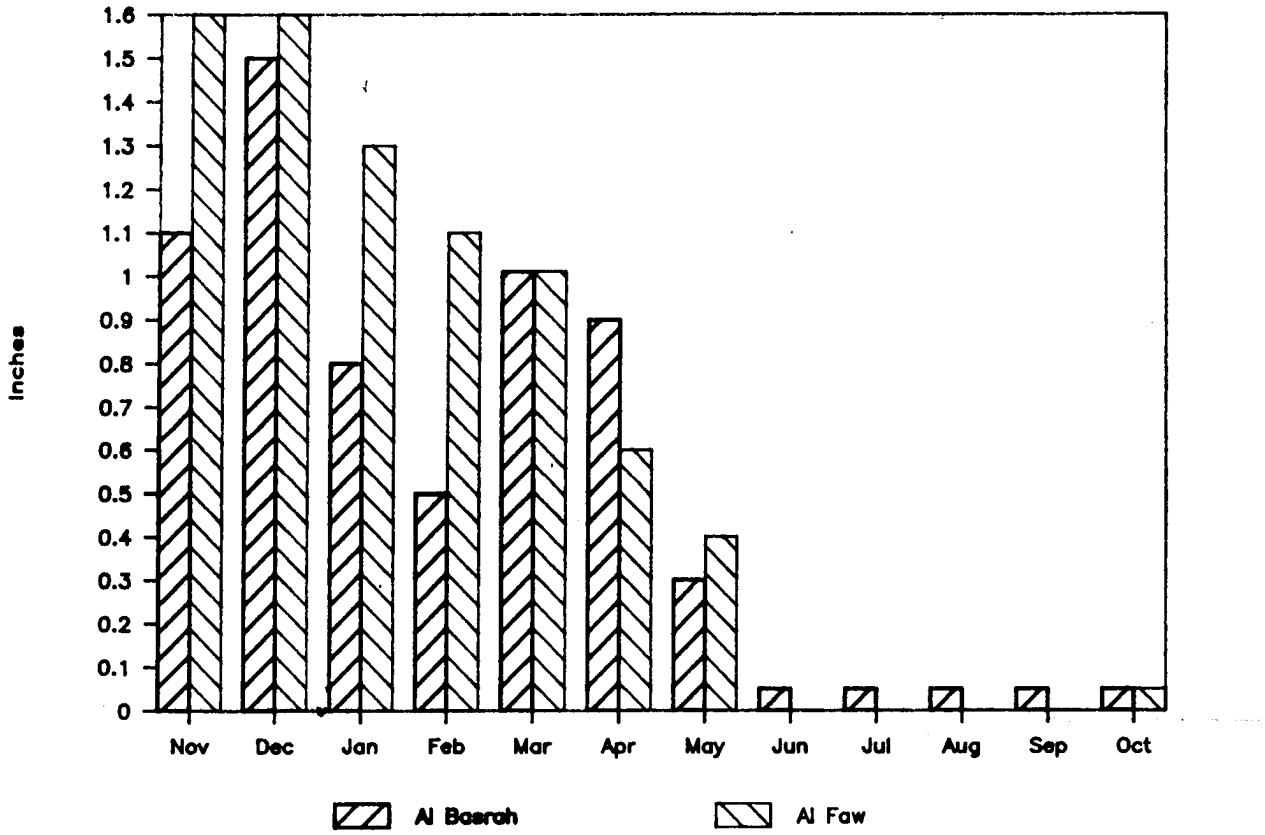
Outlook

The winter weather is too erratic for long-range forecasts--it could easily be drier than normal this year--and Iran would be taking a significant chance if its operational planning for a large offensive relied too much on the rains. We do expect, however, that each side will continue its efforts to control the flooding and to protect its supply lines from the winter weather, further reducing the impact of the rainy season. Similarly, we expect that Iranian planning for tactical operations will continue to make use of whatever advantages can be gained from the weather and the geography of the southern border region.

Figure 1.

Climatic Data for the Southern Border

Mean Monthly Amounts of Rainfall



Maximum 24 Hour Precipitation Amounts (in Inches).

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Al Basrah	0.4	1.6	1.5	1.4	1.7	0.7	0.9	*	0.0	0.0	*	0.2

Greatest and Least Rainfall by Months (in Inches)

Al Basrah	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Greatest	5.9	5.4	2.7	NA	4.2	5.9	2.2	*	0.1	*	NA	NA
Least	*	*	*	*	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Mean Number of Days with Total Cloud Cover 6/8 or more.

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Al Basrah	5	7	6	3	6	3	2	0	0	0	0	1

Mean Number of Days with Total Cloud Cover 2/8 or less.

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Al Basrah	15	13	15	15	15	16	20	29	29	31	29	27

* - Less than 0.05 inch.

Figure 2

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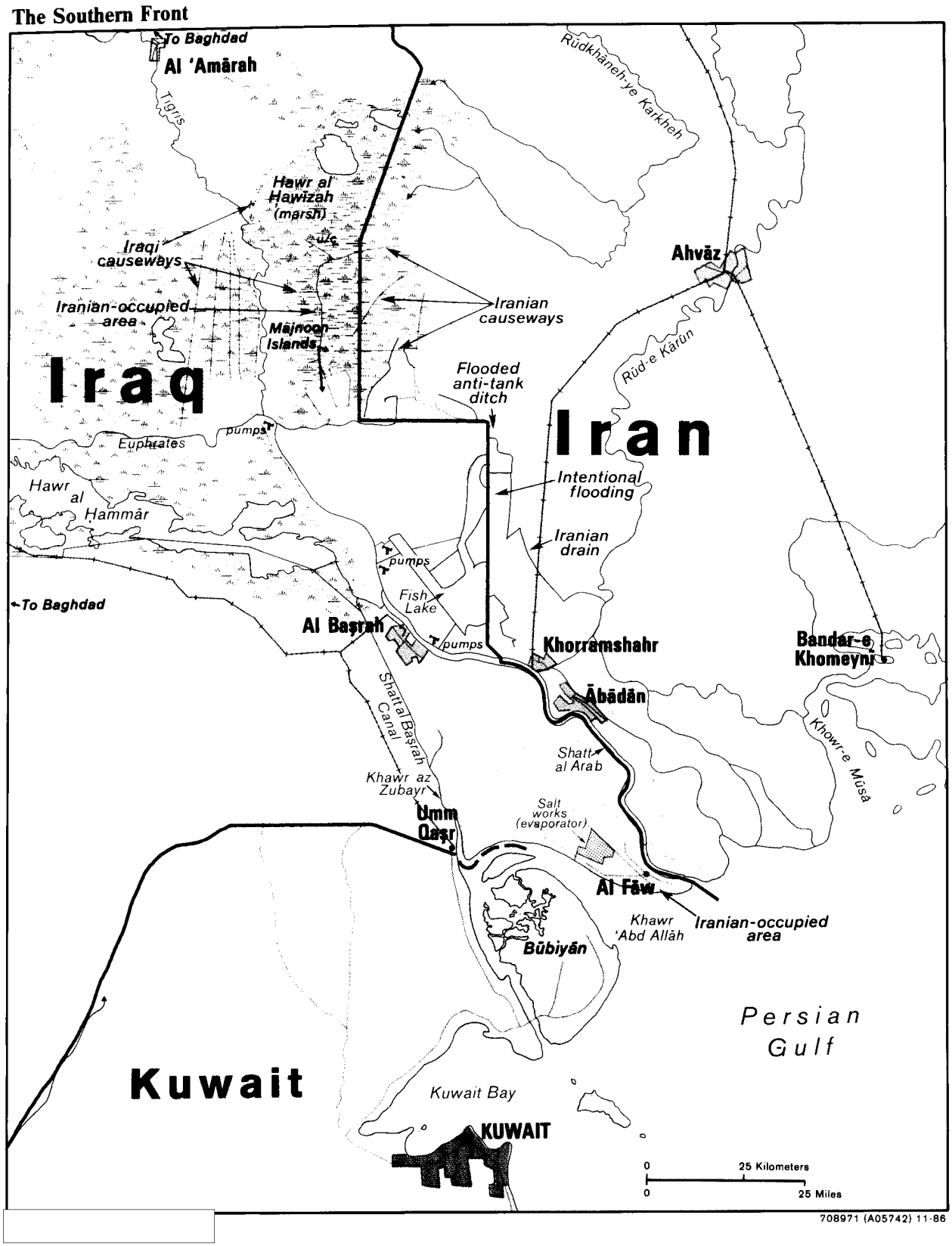

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Figure 3

March 1986 (Wet Season) Landsat of the Southern Front

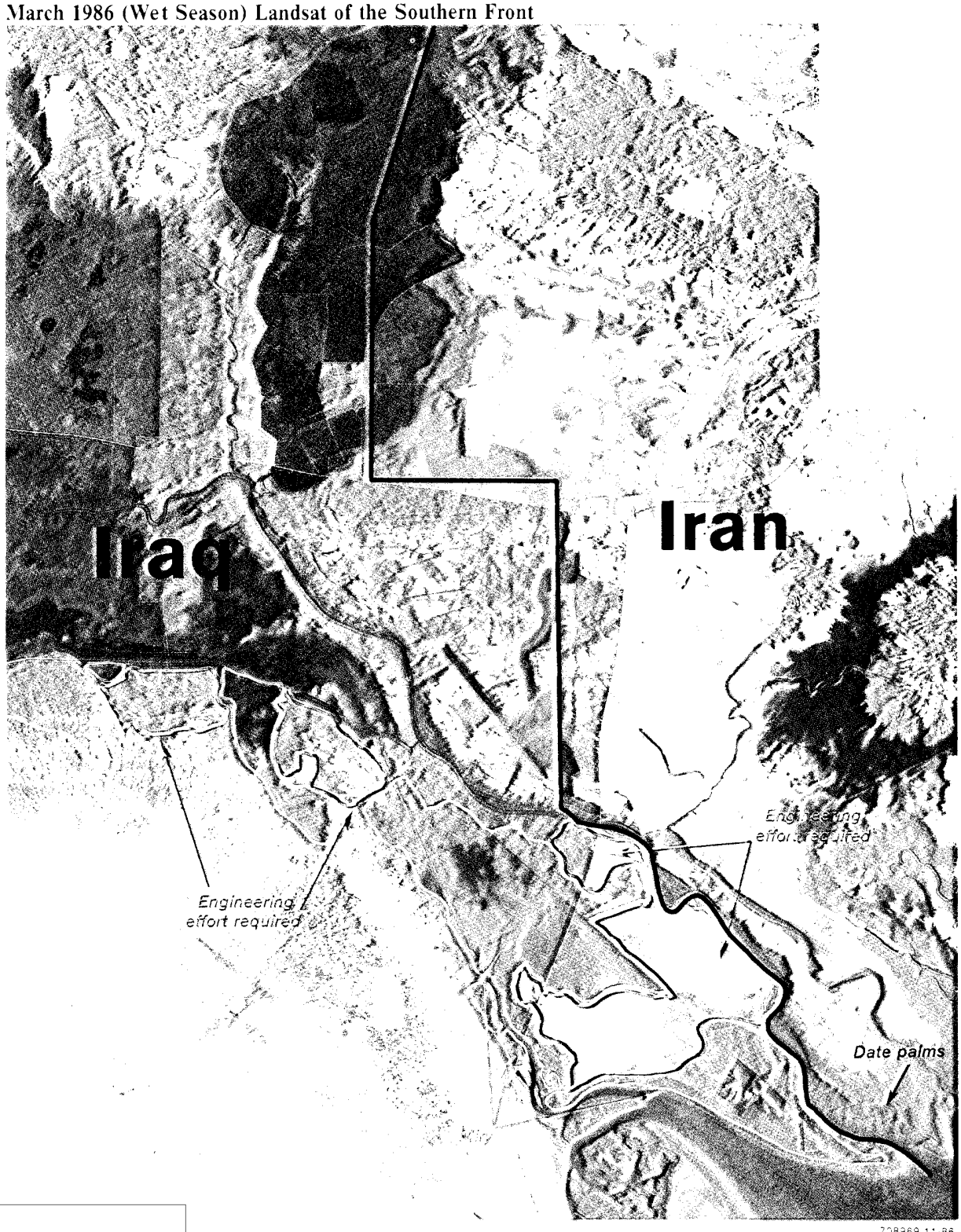

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Figure 4

September 1986 (Dry Season) Landsat of the Southern Front

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